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THE TREATMENT OF LEG ULCERS.

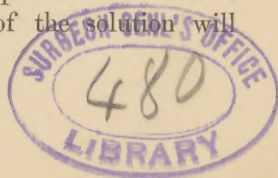
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It is not my object upon this occasion to describe or even mention every method that has been employed in the treatment of leg ulcers, but to present a method of dealing locally with these usually troublesome disorders that has come to be a routine practice in my hands and in those of a number of my students. As my opportunities for investigation and experiment in this direction have been unusual in extent—notably at the Polyclinic Hospital—and as the method to be described has been employed with ever-increasing satisfaction during the past few years in the treatment of a very large number of cases embracing almost every possible type and variety of ulceration, I can commend it with confidence, feeling sure that those accustomed to the usual methods of treatment will under its use find their results in astonishing contrast both as to the comfort of the patient and in the rapidity and certainty of healing.

THE DRESSING.—The method, therefore, is as follows: The surroundings of the ulcer or ulcers are thoroughly cleansed with soap, brush, and water, and, if necessary, shaved. The soapsuds are then washed away with simple water, and the parts doused with 1:1000 sublimate solution if the ulcer is foul, inflamed, or otherwise manifestly septic. If these conditions are absent, the bichloride may be omitted. Next, the ulcerated surfaces are subjected to the powerful but harmless antiseptic action of a spray of full strength (15 volume) peroxide of hydrogen solution. Pouring on of the agent is almost as efficient, but very wasteful. If the spray is employed, however, it is essential to use an atomizer of which every part is made of hard rubber, as the powerful oxidizing qualities of the solution will



almost immediately destroy any metallic parts with which it may come in contact. The ulcer having been thus sprayed until active effervescence ceases is then gently washed off by a stream of simple water, or by a pledget or mop of absorbent cotton saturated with the same. This carries away all detritus loosened up by the action of the peroxide. Next, the ulcerated area and one inch of the unaffected surrounding skin are covered in with strips of "Lister protective," one-half inch broad, overlapping each other about an eighth of an inch. The "protective" should be that made of very fine silk fabric coated on both sides with a mixture of copal varnish, dextrine, and carbolic acid, after the original formula of Lister, and supplied by the manufacturers of antiseptic goods. Our object in using the protective is to keep the ulcer moist, to prevent friction and irritation at all times and the tearing away of reparative material at dressings, as well as to furnish a guide to the epithelial cells in their excursion across the granulations. It also acts as a capillary drain, carrying the secretions drop by drop to the edge of the strips where a suitable dressing absorbs and sterilizes them. The strips of protective should first be soaked in strong (1 : 1000) bichloride solution, and then washed in simple or cold boiled water before being applied to the wound; this precaution being necessary, as the strong antiseptic probably kills or inhibits the growth of new-forming granulation and epithelial cells, and thus retards healing. Protective quickly spoils in solution, so that it must be sterilized immediately before using.

A dressing of gauze or butter-cloth, which has been wrung out of 1 : 1000 sublimate solution, and folded in six or eight layers large enough to overlap the protective strips several inches in all directions, is then neatly put on without creases or other irregularities. This serves to absorb and disinfect the discharges that may be transmitted into it from beneath the protective. Experience in each individual case will determine about how many thicknesses of gauze will be required for this purpose; but the less used, consistent with attaining the object desired, the better.

Finally comes the bandage. This is to keep the dressing in place, give the vessels support, and to prevent or relieve edema. Few things are more unsatisfactory than the ordinary leg bandage that is put on with reverses up the leg, especially where the patient is compelled to stand and work upon the member during the progress of treatment. No matter how expertly it may be applied, the ordinary

bandage will in a few hours or even minutes after its application be found in festoons about the ankle. On the other hand, a bandage that I have been using for the past five years will not only remain just as applied for days or even weeks and be absolutely comfortable to the wearer, but also permits the employment of the fixed antiseptic dressing for leg ulcers while the patients pursue their usual occupations—no matter how arduous—almost unconscious that their formerly disabling disease is still present.

This bandage is applied to the foot and ankle in the usual manner until that point immediately beneath the calf is reached, where reverses would usually be begun. Here, however, the difference becomes apparent; no reverses are made, but the two edges of the bandage are kept equally tight, and it is thus wrapped around the limb, practically allowing it to guide itself, the surgeon only being careful to keep the edges of the roller equally tense as it unwinds. Thus it will be found that the bandage will mount upward around the calf in a spiral manner, take a circular turn around the leg just below the knee, then descend again by a downward spiral around the calf, again mount upward as before upon the opposite side, slightly overlapping the previous turn, and so on until finally the leg will become enveloped in a bandage that might be called a figure-of-eight of the calf. It should be put on as tightly as the patient can comfortably bear, smoothly, and care should be taken that no points are left without being supported by at least one of the turns. A muslin roller, six yards long and three inches wide, will be found about the proper dimensions for this bandage. This method of giving support to the circulation of a leg is equally applicable even after the ulcer has been cured, or where swelling or varicosity exists independently of ulceration. Patients can be readily taught how to apply it, and usually give it preference to elastic stockings or rubber bandages. My experience with these latter has not been favorable; the stockings are very good when new, but soon decay, stretch, and become useless as a support, while the rubber bandage retains perspiration and often gives rise to intense irritation. Not every patient is capable of wearing either, and all, in my experience, much prefer the bandage that has been described when it is properly applied. A bandage of German manufacture can now be purchased, in which fine rubber threads run in the length of cotton webbing, which can be similarly applied and is very comfortable and satisfactory. However, it is not cheap and is prone to decay.

RE-DRESSING.—Until the parts have been rendered odorless, free of all irritation, and aseptic, it is advisable to re-dress the leg in the same manner every day, or at furthest every other day; also, until these conditions have been secured, to use the bichloride of mercury solution as a douche. When, however, asepsis has been attained, strong antiseptics should be discarded in re-dressing, as they retard healing; simple water is then to be used instead. Subsequently the dressing should be renewed every second day if the person is using the extremity, but if he is in bed, dressings need not be renewed so frequently after the discharges have become scanty.

In this, as in every other method of treating leg ulcers, if the patient will consent to remain in bed or reclining, healing takes place very much more rapidly, but under the present system the number of instances where confinement is *essential* for healing is exceedingly small.

With this protective and gauze dressing, I believe that Nature's method of healing is best assisted, and that under the conditions of moderate moisture and freedom from irritation—both traumatic and septic—is secured as rapid healing as can ever be anticipated. As I never expect surgery to evolve a method of uniting simple fractures more rapidly than at present, neither can I look forward to the cure of the great majority of leg ulcers more rapidly than under the favored dressing—that is, they fill up to the level of the skin and are covered over with epithelium without waste of reparative material just as rapidly as Nature can possibly furnish it; the time required usually being incredibly short.

EXCEPTIONS.—For clinical and remedial purposes it is my custom to divide all leg ulcers into the following classes:

1. Simple.
2. Syphilitic, diabetic, nephritic.
3. Tubercular.
4. Malignant (principally epitheliomatous degeneration of others).

To all of these the above local treatment is applicable, except certain cases of Class 3 and all of Class 4, which require excision by the knife, with subsequent suture or grafting, by Thiersch's method, or possibly amputation.

Syphilitic ulcerations require in addition to the usual local treatment some form of anti-specific medication. For this purpose I have employed the following mixture with great satisfaction:

R.—Hydrargyri bichloridi gr. j.
 Potassii iodidi 3vj.
 Syr. sarsaparillæ comp. q. s. ad ʒiv.—M.

S.—Teaspoonful after meals.

MODIFICATIONS.—Where pus or other discharge from an ulcer is excessive, it is well to dust on the merest pinch of iodoform or aristol before applying the protective; or, what is equally effective, paint the ulcer with the pyoktanin pencil.

If granulations are slow in forming or flabby, it is wise to paint the surface at each dressing with nitrate of silver solution (15 grains to 1 ounce of water), or, if greater stimulation is necessary, to scarify the ulcer and its surroundings by superficial rapid strokes of the heel of a blunt tenotomy knife or otherwise. The pain resulting from this little operation, while not severe, yet may be obviated by allowing a pledget of absorbent cotton saturated with a 5 per cent. cocaine solution to remain in contact with the surfaces for five minutes before applying the scarificator.

Exuberant granulations can most readily be removed by light parallel strokes of a fine-pointed pencil of nitrate of silver, or by scarification as above.

If the area of the ulcer be large, and the granulations are level with the surrounding skin and healthy, skin-grafting may be employed. This may be undertaken by the usual methods, or by one that I have found quite as satisfactory, based upon the practice of horsemen, who, by shaking epithelial scales from the curry-comb upon ulcers in the horse, are usually able to cure them in a very short time. So, gently scraping up a little mass of the swollen, softened, and aseptic epithelium from skin that has been under the protective just outside the limits of the ulcer, it is gently spread over the granulations. A number of these cells will generally be found to have taken root as grafts in various parts of the ulcer at the next dressing, and will wonderfully hasten its final closure.

If healing of an ulceration is retarded by the presence of sloughs—and sloughs are very slow to separate in the absence of an active suppurative process—it may be expedient to hasten their separation. If already loose at the edges, they may usually be dissected off without pain by scissors and forceps. Otherwise, the best plan is to digest them out by means of pepsin or papoid. When pepsin is used for this purpose, I build a retaining wall of tough cerate about the ulcer,

and then pour into the little reservoir thus obtained enough of the following pepsin solution to cover the ulcerated area :

R.—Pepsin pure	gr. j.
Water	oz. j.
Hydrochloric acid	min. j.—M.

Allowing this to act for about an hour, occasionally renewing the solution, the slough will as a rule be found almost or quite digested and liquefied, or so loosened up as to be readily removable by scissors and forceps. But much more convenient than this will be found the dusting of a minute portion of papoid or vegetable pepsin beneath the protective strips and allowing it to act until the limb is re-dressed next day. This succeeds well, because papoid acts best in a concentrated medium of any reaction whatever—pepsin only in a dilute acid solution.

Where the cellular tissue or lymphatics have become infected by septic material transmitted from a foul ulcer; or a phlebitis, acute or chronic, has been similarly originated, I frequently apply immediately over the strips of protective (here omitting the gauze) a sheet of lint large enough to cover in the entire affected area, and spread with an ointment composed of—

Ichthyol ammoniat.	20 parts.
Lanolin	80 “

Heavy wax-paper is put over this, and the usual bandage applied.

Ichthyol thus combined acts as a most powerful absorbent, lymphatic and circulatory stimulant, and antiseptic. So also this application will be found very useful applied over the protective strips when ulcers are complicated by eczema or great induration and infiltration of surrounding tissues. When the affected area has been covered in with the ichthyol for a few days under a firm bandage, most of the infiltration will usually have disappeared, and the gauze dressing can be applied over the protective. Since learning the value and power of ichthyol, I have had practically no use for plaster straps in treating even the most indurated leg ulcers.

Where ulcers are associated with excessive varicosity of veins, the question of proper treatment for the dilated vessels will arise. Any varicose condition of the leg can be kept entirely under control, and the patient comfortable and able to follow his avocation by means of the bandage that has been previously described, provided, however, that the dilatation does not extend above the knee. But if the

veins of the thigh are also involved, there is no method of giving them adequate support, so that if they are very troublesome, excision *en masse* is the only advisable resource. Of course, varices or isolated veins below the knee can be likewise dealt with if such radical treatment for any cause (such as constant recurrence of ulceration) be considered advisable. I have recently had several cases in which I had recourse to very extensive excision of varices of the thigh and isolated veins of the leg with the most satisfactory results. These I expect to present in detail in a future communication.

